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ABSTRACT

This program guide was written for the informed layman, educator, or educational administrator who may have some present or future responsibility for the administration of postsecondary and technical education programs. It is designed to provide some general suggested guidelines and administrative considerations for the development of new occupational education programs. Ideas for this guide were based upon comments and recommendations of specially qualified national consultants and special discussion groups of experienced administrators who took part in the national conference held in San Antonio, Texas in 1969. The six chapters cover: (1) People and Communities Now Served, (2) People to Be Served, (3) Instructional and Related Staff Development, (4) Administrative and Supervisory Staff, (5) Dynamic Administration Patterns for Post-Secondary Programs, and (6) Coordination of Vocational and Technical Education. A brief annotated bibliography is appended. (Author/JS)

Leadership Training Series No. 29

A SUGGESTED GUIDE FOR POST-SECONDARY VOCATIONAL AND TECHNICAL EDUCATION

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FINAL REPORT

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Office of Education
Bureau of Research

PREFACE

The Vocational Education Act of 1968 reflects the concern of Congress in establishing and maintaining efficient and effective post-high school vocational and technical education programs. This is further pointed out in the legislative stipulation that a specified portion of federal vocational education funds be used in the post-high school area. However, of equal importance to funding is the need for post-high school vocational and technical program administrators who have an understanding of the goals and objectives of occupational education, and the expertise to implement effective programs. As one means of contributing to the solution of this critical problem, the U.S. Office of Education contracted with The Center for Vocational and Technical Education at The Ohio State University to conduct a national conference on post-secondary vocational and technical education which was jointly sponsored by the Division of Vocational and Technical Education of the United States Office of Education, the American Association of Junior Colleges, and the American Vocational Association. This conference was conducted in San Antonio, Texas on November 5-7, 1969. This publication contains suggested guidelines for the planning of post-high school vocational and technical programs based upon the comments and recommendations of specially qualified national consultants and special discussion groups of experienced occupational education program administrators who took part in this conference.

The Center is grateful to the Division of Vocational and Technical Education of the U.S. Office of Education, the American Association of Junior Colleges, and the American Vocational Association for their splendid help and assistance in this cooperative effort.

Robert E. Taylor
Director
The Center for Vocational
and Technical Education

FOREWORD

The phenomenal growth in vocational and technical education has brought about an increasing need for trained personnel to provide leadership. This need is especially critical at the post-high school level.

In order that post-secondary vocational and technical programs be effective, there exists the necessity for having program administrators who have an understanding of the goals and objectives of occupational education and the expertise to implement effective programs. Therefore, an adequate expansion of vocational and technical education programming into post-secondary institutions cannot be achieved until the severe shortage of properly trained and oriented personnel is alleviated. It was in response to this area of need that the National Conference on Post-Secondary Vocational and Technical Education was held in San Antonio, Texas, November 5-7, 1969. This publication is based upon the presentations and discussions which took place at that conference.

Special recognition should be given to the following vocational and technical education leaders who made significant contributions to this project by serving as members of planning committees, position paper authors, conference discussion leaders, and reviewers for this document:

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This document is written for the informed layman, educator, or educational administrator who may have some present or future responsibility for the administration of post-secondary vocational and technical education programs. It is designed to provide some general suggested guidelines and administrative considerations for the development of new occupational education programs. References for more detailed planning are listed in the bibliography.

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I

PEOPLE AND COMMUNITIES NOW SERVED

Vocational and technical education administrators are currently faced with unparalleled challenges. They must address the ever present problems associated with disproportionate unemployment among youth, formal preparation for employment in an increasingly technical and sophisticated economy, the retraining and upgrading of adults in the labor force, and providing suitable programs for those who cannot succeed in regular vocational or technical education programs. If the United States is to absorb the social stresses caused by changing manpower needs, adequate vocational and technical programs, provided at both the secondary and post-secondary levels, must contribute to the solutions to these social problems.

It would be appropriate for most young people going into the labor market without the baccalaureate degree to have had occupational education either in a high school or post-high school setting or both. However, for a variety of reasons a majority of the nation's youth either do not have this opportunity or do not avail themselves of this opportunity. It is, therefore, of crucial importance that occupational education programs be available at the post-high school level for those non-baccalaureate bound youth who had no appropriate vocational preparation in high school, those who have reoriented their career goals after leaving high school, and those workers in the labor force who need retraining and upgrading.

While occupational education programs are needed and offered at both the high school and post-high school levels, this publication focuses on the administrative problems of planning, developing, and improving such programs at the post-high school level.

Present Enrollments

Approximately 60 percent of our nation's youth enter the labor market from high school. That is, they do not continue their studies in some post-high school education program upon leaving high school. Further, of those who enter college or a post-high school program, less than half complete the baccalaureate degree.

At the present time, approximately 31 percent of the nation's high school students are enrolled in some form of occupational education. When one considers that over twice this number will enter the labor market without the baccalaureate degree and need some form of education or training for gainful employment, the need for post-high school occupational education becomes more obvious.

Enrollments in post-secondary programs are increasing. The average national enrollment in post-secondary programs is 4.1

percent of the 20-24 year age group. Table 1 indicates that the range of enrollments varies among the states between 0.3 percent and 15.7 percent in the 20-24 year old age group. Although the Vocational Education Amendments of 1968 specify that vocational education opportunities should be provided so that all individuals will have access to vocational education or retraining which is of high quality, Tables 1 and 2 indicate that inequities may presently exist among those being served in the various states.

Projections

Present data indicate that the projected enrollments in vocational and technical education at the high school, post-high school and adult levels will reach 14 million by 1975. While this is a substantial increase over present enrollments, it is still inadequate in terms of the needed educational opportunities for young people and the manpower needs of society. These enrollment projections by educational level are shown in Table 3.

Students cannot enroll in programs that do not exist. Until adequate vocational and technical programs are made available within the states, a solution to the problems of social needs and labor market demands can never be achieved.

Kinds of Institutions

There exists a variety of institutions which offer post-high school occupational education. These institutions serve the range of occupational training needs of those in full-time pre-employment training to the needs of employed workers for short-term, intensive upgrading courses.

The Area Vocational-Technical School

In many states the area vocational-technical school provides the occupational training bridge between the high school and the labor market. It generally serves the training needs of more than one school district. While in a few states the training emphasis is directed toward high school-aged youth (grades 11 and 12) with limited programs for adults, area vocational-technical schools in many states emphasize post-high school programs in the training of highly skilled workers, or craftsmen and technicians. In addition, these institutions provide for updating and upgrading the knowledge and skills of persons out of high school who are already employed. The

TABLE 1

Post-Secondary Enrollment in Vocational Education Compared With Population in the 20- to 24-Year Age Group by States, Fiscal Years 1966, 1967, and 1968*

State or Territory	1967	1968		1966	1967		1966
	Population 20-24 Years 1/	Post-Secondary Vocational Enrollment 2/	Percentage 20-24 Age Group in Post-Secondary Vocational Education	Population 20-24 Years 1/	Post-Secondary Vocational Enrollment 3/	Percentage 20-24 Age Group in Post-Secondary Vocational Education	Percentage 20 24 Age Group in Post-Secondary Vocational Education 4/
Total:	14,572,000	592,970	4.1	13,627,000	499,906	3.7	3.26
Alabama	292,000	11,423	3.9	276,000	1,340	0.5	.88
Alaska	28,000	295	1.1	26,000	191	0.7	.65
Arizona	132,000	5,177	3.9	121,000	4,105	3.4	2.47
Arkansas	161,000	4,525	2.8	154,000	3,214	2.1	2.07
California	1,454,000	195,087	13.4	1,353,000	181,437	13.4	11.82
Colorado	154,000	7,446	4.8	141,000	8,737	6.2	5.25
Connecticut	208,000	5,218	2.5	193,000	5,025	2.6	1.66
Delaware	38,000	111	0.3	35,000	6	0.02	
Florida	438,000	68,723	15.7	405,000	20,620	5.1	5.64
Georgia	380,000	13,724	3.6	367,000	12,028	3.3	1.02
Hawaii	77,000	3,069	4.0	71,000	3,077	4.3	3.76
Idaho	54,000	1,880	3.5	51,000	1,705	3.1	1.93
Illinois	725,000	13,325	1.8	682,000	7,861	1.2	.55
Indiana	345,000	3,137	0.9	323,000	1,209	0.4	.24
Iowa	184,000	5,234	2.8	171,000	2,634	1.5	1.06
Kansas	162,000	3,065	1.9	154,000	3,490	2.3	1.71
Kentucky	262,000	4,919	1.9	244,000	4,192	1.7	.75
Louisiana	288,000	15,306	5.3	270,000	14,088	5.2	4.95
Maine	71,000	897	1.3	67,000	929	1.4	1.18
Maryland	291,000	7,445	2.6	269,000	3,315	1.2	.89

TABLE 1 (continued)

Massachusetts	370,000	5,455	1.5	347,000	4,846	1.4	1.05
Michigan	601,000	24,915	4.1	557,000	26,390	4.7	3.65
Minnesota	247,000	9,883	4.0	228,000	8,017	3.5	2.26
Mississippi	202,000	4,591	2.3	194,000	4,087	2.1	1.41
Missouri	316,000	6,190	2.0	302,000	4,014	1.3	.59
Montana	51,000	827	1.6	48,000	556	1.2	2.61
Nebraska	97,000	2,612	2.7	90,000	2,309	2.6	1.50
Nevada	34,000	1,104	3.2	33,000	422	1.3	.85
New Hampshire	49,000	1,148	2.3	45,000	1,159	2.6	1.81
New Jersey	504,000	1,677	0.3	465,000	1,568	0.3	.27
New Mexico	73,000	4,117	5.6	70,000	1,194	1.7	.91
New York	1,191,000	38,063	3.2	1,112,000	32,521	2.9	2.63
North Carolina	445,000	13,379	3.0	420,000	11,049	2.6	1.75
North Dakota	49,000	2,699	5.5	48,000	2,334	4.9	5.23
Ohio	705,000	3,495	0.5	651,000	5,138	0.8	.58
Oklahoma	200,000	2,816	1.4	184,000	2,104	1.1	1.15
Oregon	148,000	6,551	4.4	138,000	4,797	3.5	3.45
Pennsylvania	783,000	3,247	0.4	734,000	3,850	0.5	.45
Rhode Island	65,000	432	0.7	64,000	407	0.6	
South Carolina	540,000	3,873	1.6	241,000	4,059	1.7	1.44
South Dakota	45,000	539	1.2	44,000	423	1.0	.89
Tennessee	314,000	8,101	2.6	296,000	6,774	2.3	1.03
Texas	841,000	21,928	2.6	793,000	26,034	3.3	2.52
Utah	79,000	5,112	6.5	75,000	4,796	6.4	4.62
Vermont	30,000	356	1.2	28,000	416	1.5	1.38
Virginia	397,000	7,644	1.9	372,000	6,647	1.8	1.35
Washington	257,000	19,895	7.7	222,000	35,106	15.8	27.51
West Virginia	136,000	1,391	1.0	127,000	790	0.6	.40
Wisconsin	283,000	14,952	5.3	265,000	12,451	4.7	8.44
Wyoming	21,000	440	2.1	20,000	406	2.0	1.49
Dist. of Columbia	46,000	1,044	2.3	45,000	655	1.5	2.36
Guam		72			103		
Puerto Rico		4,436			5,343		
Virgin Islands							

1/ Estimates of resident population in ages 20-24 for States. Furnished by Bureau of the Census, Department of Commerce, Washington, D.C.

2/ U.S. Department of Health, Education, and Welfare, Office of Education, Unpublished figures supplied by the Division of Vocational and Technical Education.

* Enrollments in Secondary and Post-Secondary Vocational and Technical Education, U.S. Office of Education, Washington, D.C. November 1969, p. 9.

3/ _____. "Vocational and Technical Education," Annual Report, Fiscal year 1967, OE-80008-67.

4/ _____. "Vocational Education, The Bridge Between Man and His Work." OE-80052, 1968.

TABLE 2

Post-Secondary Enrollment in Vocational Education as a Percentage of Population in the 20-to 24-Year Age Group, Fiscal Year 1968*

Percentages						
0.0-0.9	1.0-1.9	2.0-2.9	3.0-3.9	4.0-4.9	5.0-5.9	Other
Delaware Indiana New Jersey Ohio	Alaska Illinois Kansas Kentucky	Arkansas Connecticut Dist. of Col. Iowa	Alabama Arizona Georgia Idaho	Colorado Hawaii Michigan Minnesota	Louisiana New Mexico North Dakota Wisconsin	Utah (6.5 percent) Washington (7.7 percent)
Pennsylvania Rhode Island	Maine Massachusetts Montana Oklahoma	Maryland Mississippi Missouri Nebraska	Nevada New York North Carolina	Oregon		California (13.4 percent) Florida (15.7 percent)
	South Carolina South Dakota Vermont Virginia	New Hampshire Tennessee Texas Wyoming				
	West Virginia					

Data incomplete: Guam, Puerto Rico
No Data: Virgin Islands

*Enrollments in Secondary and Post-Secondary Vocational and Technical Education, U.S. Office of Education, Washington, D.C. November 1969, p. 9.

TABLE 3

Actual and Projected Enrollments,
Fiscal Years 1967, 1969, 1970, and 1975*

Population Group	1967	1969	1970**	1975**
Secondary	3,532,832	4,079,395	5,000,000	5,500,000
Post-secondary	499,906	706,085	850,000	1,250,000
Adult	2,941,109	3,050,466	4,189,500	6,500,000
Special Needs	73,663	143,420	600,000	750,000
TOTAL	7,047,501	7,979,366	10,639,500	14,000,000

*Michael Russo. "14 Million Students by 1975," American Education. U.S. Department of Health, Education and Welfare. Office of Education. Washington, D.C. March 1969, p. 11.

**Projected enrollments.

designation "area vocational education school" may, for the use of federal vocational education funds, include a specialized high school, a department of a high school, a specialized post-high school institution, or a department of a post-high school institution.

Community and Junior Colleges

The fastest growing post-secondary educational institution in America is the community-junior college. The annual percent of increase in enrollments for these institutions has ranged from 12 to 25 percent over the *past five years,* and indications are that this trend will continue. [1]

The Technical Institute

Technical institutes or technical colleges have for many years provided specialized programs to educate highly skilled technicians. Programs offered in this setting are generally designed to provide a broadly based competency in a field of applied science of sufficient depth that the graduate technician may be employed in one of a cluster of jobs. The associate degree is generally awarded to the student upon completion of a program. Although the programs are aimed at the objective of gainful employment at the supportive level and not for transferability to a baccalaureate or professional degree, they do not completely preclude this objective.

Senior Colleges and Universities

Many four-year colleges and universities provide occupational education programs at less than baccalaureate degree level. These are most often programs which terminate in the associate degree or some form of state licensure or certification. Typical programs found in this setting include medical and health-related technologies, and engineering and agricultural-related technician training programs.

Proprietary Vocational Schools

Proprietary vocational schools are largely single-purpose institutions specializing in providing occupational training in a specific occupation for a specific job. The majority of the program offerings in these institutions are in the trade and technical or equivalent category.

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[1] Occupational education enrollments in these institutions vary from 30 to 75 percent of the total enrollment. Proponents of the community-junior college feel that occupational education in this institutional setting is ideal in that it provides a broader curriculum, makes possible a richer mix of vocational-technical and general education, and allows the student to adapt his program more readily in what may still be an exploratory period.

II

PEOPLE TO BE SERVED

Student populations and clientele groups to be served by post-high school occupational education programs may vary greatly in terms of program and student service needs. These differences may be due to variations in local and regional manpower needs, sociological differences in student groups, and variations in rural and urban institutional settings. However, the occupational education programs and services of an institution must be specifically tailored to meet the unique needs of the people in the geographic area to be served.

General Characteristics of Students

Although each institution serves a clientele group with unique program and student service needs, there are certain characteristics of post-high school occupational education students that seem to be general in nature.

One of the most recent national studies which describes the general characteristics of occupational education students in community-junior colleges is reported by Garbin. [2] These data indicate that nearly 80 percent of the students in post-high school occupational education programs are 21 years of age or younger and are married. Other student characteristics are described in this study as follows:

Ability

Although occupational education has often been considered a refuge for less able students, recent data indicate that over 25 percent are "B" or better high school students and that over 90 percent are "C" or better. [3]

Socioeconomic Background

A strong relationship exists between the type of college a student attends and his socioeconomic background (as measured by father's income). Approximately 40 percent of the students in occupational education programs come from families where the father's annual

[2] A.P. Garbin, "Post-Secondary Vocational-Technical Education: Some Considerations Relating to the Student." National Conference on Post-Secondary Education. The Center for Vocational and Technical Education. Columbus, Ohio. February 1970. Leadership Series No. 26. pp. 3-46.

[3] Ibid., p. 20.

income is $7,000 or less. [4] Further, more than 50 percent of these students work at part-time or full-time jobs while in school. [5]

Choice of Training Programs

The persons exerting the greatest influence on occupational education students in terms of program choice are: fathers; friends or relatives; mothers, brothers and sisters; guidance counselors; and high school students. Table 4 indicates that members of the student's family, where considered collectively, form the most influential group. [6]

Time of Program Choice

Recent national survey data indicate that the majority of vocational and technical education students in community-junior colleges make occupational decisions prior to high school graduation with a significant number of the decisions made during the senior year. More important, however, is the fact that nearly 25 percent of the students make their occupational choices after they are enrolled in the community-junior college. This underscores the need for effective occupational guidance and counseling not only at the high school level, but also within the post-high school educational institution.

Reasons for Attending Particular Institutions

Occupational education students indicate a number of reasons for attending an institution. However, the most important seem to be: 1) that the institution offers special training programs desired by the enrollee, 2) that the institution is close to home, and 3) that fees and tuition are relatively low in cost. Other reasons of lesser importance are the degree to which the school provides opportunity for student employment, and the reputation of the school. [7]

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[4] Ibid., p. 24.

[5] Leonard L. Baird, James M. Richards, Jr., Linda A. Schevel. "A Description of Graduates of Two-Year Colleges." ACT Research Report, No. 28. January 1969. pp. 91, 135, 137.

[6] Garbin. "Post-Secondary Vocational-Technical Education." p. 26.

[7] Ibid., p. 29.

TABLE 4

Source of Greatest Influence in the Choice of College Program as Indicated by a National Sample of Junior College Students Enrolled in Occupational Programs

Source of Influence	Number	Percent
Father	593	11.7
Mother	467	9.2
Brothers or sisters	187	3.7
Fellow students	197	3.9
Guidance counselor	471	9.3
High school vocational education teacher	264	5.2
Other high school teacher	165	3.3
Post-high school teacher	49	1.0
Friend, or relatives (Other than parents, brothers, or sisters)	550	10.8
Other	2,131	42.0
TOTAL	5,074	100.1

TABLE 5

Grade in School in Which a Decision was Reached Concerning Present Occupational Plans as Indicated by a National Sample of Junior College Students Enrolled in Occupational Programs

Grade in School	Number	Percent
Grade school	263	5.4
Junior high school (7 - 9)	420	8.6
Sophomore year in high school	429	8.8
Junior year in high school	638	13.1
Senior year in high school	1,134	23.3
Period between high school and college	739	15.2
Freshman year of junior college	470	9.7
Sophomore year of junior college	183	3.8
Still undecided	200	4.1
Don't remember	387	8.0
TOTAL	4,863	100.0

TABLE 6

Reason for Attending Particular College as Indicated by a National Sample of Junior College Students Enrolled in Occupational Programs

Reason	Number	Percent
Close to home	1,148	22.5
Low cost	914	17.9
Special program or courses offered	1,719	33.7
Friends attending there	54	1.1
Opportunity to work while in school	260	5.1
Reputation of school	186	3.6
Family	70	1.4
High school vocational education teacher	22	.4
High school guidance counselor (s)	105	2.1
Other	627	12.3
TOTAL	5,105	100.1

Student Enrollment Practices

Of particular importance in the development of new occupational education programs is the need to enroll a sufficient number of adequately prepared students. This is not always an easy task. While students may be available in abundance in large urban areas, institutions in suburban and rural areas generally have to maintain a vigorous recruiting effort to maintain class sizes that provide an acceptable learning mix at reasonable student-hour costs.

The recruitment and enrollment of students who are unprepared to meet the program standards of an institution is a mistake. This practice perpetrates a cruel hoax on the student. It discredits the institution, disillusions the students and faculty, and will lead ultimately to the failure of the program.

Recruitment Methods

Recruitment techniques vary greatly among types and kinds of institutions. However, some of the most commonly used methods include:

1. Developing brochures and descriptive advertising materials for mail use.
2. Working with high school counselors (e.g., inviting them to the institution or campus for demonstrations, workshops, etc.).
3. Sponsorship of "career days" for potential students.
4. Presenting news and human interest stories about the institution, its program and its graduates in the various news media.
5. Maintaining a "speakers bureau" that provides speakers with well-illustrated and interesting promotional talks for community groups and service organizations.

One of the most effective recruitment techniques is through the development of a joint cooperative effort between the institution and employers. This strategy not only provides a realistic recruiting team and program support, but also provides a continuing liaison between the educational institution and the consumer of that institution's product.

Matching Students and Curricula

The process of matching students and appropriate curricula is essential if the needs of the majority of students are to be met. This

process is not an easy one, and must be carefully developed by the institution. Key ingredients of this system include: 1) active recruiting of students, 2) an effective counseling and an occupational guidance program with the capacity for administering appropriate tests and measurements, 3) remedial courses and program sequences that may be used when necessary to develop minimum academic competencies in beginning students, and 4) flexibility in the institutional structure that will allow the design and installation of new curricula when needed and requested by minimum size groups for the purpose of building occupational competencies.

Guidance and Counseling

Guidance and counseling services should be available to the student during the enrollment process and be an integral part of the student's educational development. These services should always be available to assist the student in the initial transition into the educational program, assist him in resolving scholastic or personal problems, and assist him in the transition from school to work.

Post-secondary occupational education students frequently need employment or special financial assistance sometime during their educational program. It is essential that the counseling and guidance staff be knowledgeable about the availability of scholarships, grants, loans, student work programs, and other financial options that may assist needy students.

Student Retention

Student retention is highly related to student recruitment. A student recruitment program is meaningless if the retention rate is low.

The preponderance of data which describe post-high school students who drop out of college programs indicate that academic difficulty is the leading contributor to program discontinuance. Financial difficulty and general loss of interest in the program follow close behind. [8] It is important that the institution provide quality instruction that is interesting and relevant to the students' needs. It is also important that the institution provide some sort of financial guidance or assistance to needy students. However, of greatest

[8] Aaron J. Miller, "A Study of Engineering and Technical Institute Freshman Enrollees and Dropouts in Terms of Selected Intellective and Non-Intellective Factors." Unpublished doctoral dissertation. Oklahoma State University, May 1966. p. 11.

importance is the offering of special, remedial coursework designed to assist the willing, financially able, and well-motivated student who needs special help in foundation courses prior to entry into the regular vocational and technical program.

These special preoccupational training programs must start at the level of the student's individual needs and provide the missing reading, science, or mathematics required for successful entry into the occupational program desired by the student. They must be "individualized" in that they assist each student in overcoming his personal academic deficiencies. Further, the programs should be organized so that they relate to the student's particular field of vocational interest.

These kinds of preoccupational programs are particularly crucial in institutions which enroll adults who have been out of the formal educational environment for some time.

Student Placement

The educational institution must accept the responsibility for student placement. Studies of student placement indicate that the training institution is the most effective agent in placing the trained student on the job; more effective than public employment services or the student left to his own devices. [9]

A successful placement program is important not only for a smooth transition of students from school to work, but also for the recruitment of new students. Successfully placed graduates can have a significant impact upon the recruitment of future students.

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[9] James W. Altman and Edward J. Morrison, School and Community Factors in Employment Success of Trade and Industry Course Graduates. American Institutes for Research. Pittsburg, Pennsylvania, 1966.

III

INSTRUCTIONAL AND RELATED STAFF DEVELOPMENT

One of the most important factors in the success of any vocational and technical education program is the competence of the instructional and related staff. It is possible for a well-trained, experienced, technically competent and enthusiastic faculty to compensate for program shortcomings in such areas as facilities and equipment and make the difference between program success or failure.

In initiating new occupational education programs where optimum financial support is not initially available, it becomes necessary to make certain compromises. However, the quality of the instructional staff should never be compromised. A superior instructor may be able to compensate for the temporary lack of special laboratory equipment, but the best laboratory facilities cannot compensate for poor teaching.

Table 7 indicates the present and projected need for vocational and technical education teachers and the growth trend of this need. If this projected need for qualified teachers is to be met, these potential teachers must soon be identified and developed through in-service or preservice training programs.

Faculty Qualifications

Educational Qualifications

Faculty members must have an understanding and mastery of their subject which is greater than that which will be taught to their students. This requires an educational preparation which gives the instructor a comprehensive understanding of the scientific principles and phenomena underlying the subject matter that he teaches.

In the case of highly technical occupations, faculty members generally obtain their preparation in an occupational speciality from specialized professional schools. In the case of the skilled trade and craft occupations, they frequently receive their preparation in vocational schools and on-the-job training programs coupled with actual work experience. Graduates of high level occupational education programs who have acquired appropriate employment experiences and who have continued their education with additional formal coursework in the technical subject area and the professional teaching area often become excellent teachers.

TABLE 7

Projections of Teachers, Vocational and Technical Education, 1966-1975*

	1966	1967	1970	1975
Secondary	65,801	69,468	94,300	137,500
Post-secondary	19,193	22,625	32,400	47,200
Adult	58,701	59,281	87,600	127,700
Special Needs	1,299	2,030	3,000	4,400
Total (Total number of positions filled, full- and part-time—some teachers teach at more than one level)	144,994	153,404	217,300	316,800
Total (Unduplicated)	124,042	132,581	176,500	257,900

*Russo. "4 Million Students by 1975." p. 11.

Occupational Experience

Some degree of occupational or employment experience is important for all of the teaching staff in a vocational or technical education program. This work experience must relate directly to the technical subject matter taught, must be recent enough to reflect current business or industrial practice, and must involve the kinds of skills and competencies that will be taught in the laboratory or classroom.

The duration of employment experience necessary to impart this minimum skill and knowledge to the teacher varies with individuals and their respective past employment. In lieu of valid testing procedures that can establish occupational competency, most state departments of education require from three to five years of occupational experience for vocational-technical teacher certification.

Personal Qualifications

The most important quality for teaching faculty is, perhaps, the most difficult to assess. This quality is the desire and ability to work with and relate to students. A technically competent and experienced subject matter specialist without this quality is a liability to the instructional program and the institution.

Certification

Every state has established its own rules and regulations governing the certification of teachers and administrators at the elementary and secondary levels, although certification requirements are generally not extended into post-secondary occupational education. However, it is important that administrators of new post-secondary occupational education programs check with the appropriate state educational agency to determine the nature of existing certification requirements. In most states this information can be obtained from the office of the state director of vocational education or the state director of public community colleges.

It should be noted that the federal government is not involved in the establishment or the maintenance of certification standards. This responsibility has always been the sole responsibility of the state.

The Role of the Faculty

Most successful post-secondary occupational education programs are taught by full-time staffs. Part-time staff members cannot devote the time necessary to provide the sustained leadership and interest

essential to the success of most programs. Where it is necessary to employ part-time staff, there should be a nucleus of full-time staff to provide the integration, continuity and direction for program efforts.

Beginning vocational and technical education classes generally have from 25 to 40 students in lecture classes. However, in laboratory or shop sections, this number of students should be divided into two sections of 15 to 20 students each. This requires a minimum of two full-time equivalent faculty members to teach the technical specialty courses for a one-year occupational program. For established two-year post-high school occupational education programs with sections of 25 to 40 students in both the first and second years of the program, a full-time equivalent staff of five instructors is generally required.

A teaching load of not more than 20 student-contact hours per week should constitute a full-time teaching load for instructors in post-high school occupational education programs. The balance of their time should be spent in assisting students, developing courses, planning new and effective shop or laboratory experiences, improving lectures and demonstrations, and other essential class and laboratory activities.

Faculty Recruitment

One of the most serious considerations in implementing a new post-secondary occupational education program is the recruitment of qualified teaching faculty. At the present time the principal sources of vocational and technical instructors are: other post-secondary educational institutions, business and industry, and the military.

Private or Public Employers

A major criterion for selecting a vocational-technical teacher is occupational competency. Recruiting faculty directly from private or public employers in the field frequently satisfies this criterion. However, in many cases it is difficult to compete with industrial and other employers for experienced workers because of the lower salaries paid by educational institutions. Nevertheless, this course provides a resource of both full-time and part-time teachers with current work experience.

Teacher Education Institutions

In some areas of vocational and technical education prospective vocational and technical teachers are frequently taught the necessary skills and knowledge that they need in baccalaureate degree

programs. In some cases the teacher training institution can provide both the technical coursework and the necessary pedagogical skills. In other cases, the teacher training institution may admit graduates of post-secondary vocational education programs with several years of relevant work experience into a program which provides teacher training and additional advanced technical courses. Still other institutions combine technical coursework, teacher education, and several years of cooperative work experience in business or industry before granting the baccalaureate degree. Information regarding the location of these kinds of teacher education programs may be obtained from the respective state department of education or the Division of Vocational and Technical Education in the U.S. Office of Education.

Faculty Development

Providing appropriate in-service educational experiences that will keep vocational and technical education teachers up-to-date is one of the most formidable and crucial problems facing occupational education. Teachers must keep current their knowledge of both the scientific changes and the changes in the techniques, procedures, materials, apparatus, equipment, applications, and special services in their occupational specialities. They must also be aware of the latest and most effective techniques and innovations in teaching. The teaching staff must be encouraged and supported in a positive way by the school administration in these professional development activities. Further, the school administration must provide a plan by which teachers will develop professionally and remain technologically current.

Frequent visits by the teaching staff to places where graduates are employed helps the staff evaluate their occupational education programs, laboratories, methods, services, and performance standards. Furthermore, it helps to keep the staff aware of the technological changes in their respective field.

Periodic return to industrial or similar employment in the specialized field for current work experience is essential if instructors are to remain technologically up-to-date. Of equal importance is the periodic return of teachers to formal study at a college or university to renew their competencies in the fundamental principles underlying the subject area taught. Large institutions with a substantial and continuing demand for staff upgrading courses should explore the development of a cooperative extension program with appropriate divisions and departments of a state university. Sabbatical leaves or other periods of released time should be granted by the employing institution to the instructional staff for purposes

of faculty development.

An effective method for teachers to maintain occupational proficiency is for institutional staff to hold memberships in professional and technical societies related to their field of occupational speciality. Instructional staff should be encouraged, through released time and financial assistance, to attend professional and technical society meetings and special technical teacher training institutes.

IV

ADMINISTRATIVE AND SUPERVISORY STAFF

The degree to which occupational education programs succeed is the responsibility of the institutional administration. The extent to which the programs are understood and supported by administrative policy and staff is ultimately reflected in the quality and effectiveness of the programs.

The Administrator's Role

The President

The president or chief administrative officer of an institution directs the institution toward its stated program goals and objectives. He is responsible for the administration of instruction and implementation of all institutional policies. He also serves as the public relations bridge between the institution as a whole and the community or region being served. The president's role is more than that of a super manager; he must be a power figure, a decision-maker and an agent for change. He must be able to discharge his role in ambivalent settings where the integrity of the institution is preserved, yet an effective and cooperative interaction is maintained with the communities served.

At a time when the demands and values of members within the faculty and communities being served are often divergent, it is essential that the president be a skilled mediator. Most crucial issues are better resolved by consensus than by dictum. Furthermore, he must be able to patiently pursue his role as mediator on major issues while a consensus is being formed. A sense of being part of the decision-making process and being directly involved in implementing those decisions generates faculty loyalty and support.

The Vice-President, Dean, or Director

In the case of a multiple purpose institution, the responsibility for administering the total program of occupational education instruction is frequently assigned to the vice-president, dean, or director. This administrative assignment frequently includes the following duties:

1. Propose, justify, develop and initiate new programs.
2. Recruit and select professional staff.
3. Organize and administer in-service staff development activities.
4. Direct and supervise the overall program of occupational educational instruction.
5. Evaluate the effectiveness of the overall occupational education program.

6. Coordinate advisory group services to the various occupational education departments within the institution.
7. Serve in an administrative liaison capacity with college transfer or academic divisions within the institution.
8. Prepare and administer the budget for programs and services relating to vocational and technical education.

In the case of small, single purpose institutions with no general education or college transfer division, the duties previously mentioned are generally performed by the chief administrator of that institution.

The Department Head or Chairman

Effective administration of occupational education requires the appointment of appropriate coordinators, department heads or chairmen at the departmental level. This level of administration is responsible for the direct supervision of instruction within that department. Other duties frequently performed by the department head or chairman include supervision of the instructional staff, assignment of teaching loads and courses to departmental faculty, recruitment and recommendation of new faculty, including coordinators of cooperative programs, responsibility for student recruitment, responsibility for student placement and follow-up, responsibility for working with the program advisory committee, and preparation of departmental budgets and long-range plans. Released time must be provided by the institution for the department head or chairman for the conduct for these administrative duties.

New Dimensions in Administration

A major responsibility of the administrator in today's post-secondary vocational and technical education institution is to establish and maintain a dialogue and working relationships with the various segments of the educational community to be served. This includes working with such groups as the secondary schools, parents' groups, employer groups, governmental agencies, and community-action groups. An educational institution can no longer survive if it is not sensitive and responsive to the needs of its clientele.

Another responsibility of administration in today's educational context is to develop and maintain an institutional atmosphere in which new practices and exemplary programs can quickly and effectively be tested and implemented. The responsibility for being aware of the existence of new and innovative programs, research-based educational products, and new significant educational

findings falls equally on the researcher and the administrator or product user. An institution's awareness of the latest in programs, educational products, and relevant research may be enhanced by maintaining a close liaison with their respective state research coordinating unit.

Staff Training

During recent years the shortage of qualified administrators to staff vocational and technical education programs has been one of the most difficult and frustrating problems in the national development of occupational education. Table 8 indicates the growth in the need for administrative personnel over the past several years and projects these needs to 1975.

In-service Training

In the past, the burgeoning need for administrative staff for occupational education programs was frequently filled by general education administrators and successful vocational education teachers who wished to move into administration. These administrators were developed through the realities of on-the-job experience coupled with the availability of a variety of in-service training programs. In-service training continues to provide the critical training needed for many new occupational education program administrators. Some of the in-service training opportunities available for vocational and technical education administrators are:

1. Leadership Development Institutes and Workshops. These activities vary from short, intensive, one or two-day programs directed toward specific administrative problems to two-week summer institutes directed toward general administrative training. These programs are generally sponsored by the U.S. Office of Education and conducted by colleges and universities or one of the national centers for vocational and technical education, but more and more state departments of education and related state boards or agencies are providing such programs through universities. Information concerning the availability of in-service training opportunities of this type may be obtained from the respective state division of vocational education, usually the state director of vocational education: or the Division of Vocational and Technical Education, U.S. Office of Education.
2. University Credit Courses. Regularly scheduled in-service courses are frequently offered by colleges and universities in cooperation with the state division of vocational education in the state land grant college or university.

TABLE 8

Actual and Projected Numbers of State and Local Administrative and Other Ancillary Personnel in Vocational and Technical Education, Fiscal Years 1966, 1970, and 1975*

Personnel	1966	1970	1975
State Level			
Directors or Supervisors	378	425	530
Assistant Directors or Supervisors	420	470	650
Area Supervisors	257	460	740
Youth Specialists	32	90	145
Teacher Trainers	160	68	90
Itinerant Teachers	182	210	235
Research Specialists	59	70	90
Guidance Specialists	46	85	95
Curriculum Specialists	79	70	90
Work Study	33	---	---
Other	125	150	200
Subtotal	1,771	2,098	2,865
Teacher Trainers (Institution)	2,145	2,640	3,150
Total State	3,916	4,738	6,015
Local Level			
Directors or Supervisors	3,030	3,950	5,675
Guidance Specialists	1,009	1,050	1,200
Curriculum Specialists	123	160	200
Work Study	607	---	---
Other	317	350	450
Total Local	5,136	5,510	7,525
Total State and Local	9,052	10,248	13,540

*Michael Russo, "14 Million Students by 1975," American Education, U.S. Department of Health, Education and Welfare. Office of Education. Washington, D.C. March 1969, p.11.

Preservice Training

A growing number of colleges and universities are offering graduate training programs at the master's and doctorate level for training vocational education administrators. These programs vary in length and type. Some provide an internship experience for candidates who have had no previous administrative experience while other programs provide advanced coursework for those with some administrative background. Further information concerning the location of these kinds of programs may be obtained from the Vocational Education Training Branch, Bureau of Educational Personnel Development, U.S. Office of Education.

V

DYNAMIC ADMINISTRATIVE PATTERNS FOR POST-SECONDARY PROGRAMS

The administrative structure of an institution must be designed to promote, balance and achieve the varied educational purposes of the institution. The president or chief administrative officer of the institution generally does not have the time or experience to direct all of the varied details in managing the operation of occupational education programs. Consequently, a large portion of this responsibility should be delegated to his staff. However, the quality and effectiveness of the programs are still directly reflected in the administrative support and leadership provided by the chief administrative officer.

Administrative Support

Full administrative support is an essential ingredient in the success of vocational and technical programs. This administrative support is assured in institutions whose sole objective is the training of technicians, craftsmen and workers for business and industry. In institutions which have other educational objectives along with occupational education, the occupational programs should be clearly identified in a separate vocational or occupational education division of the institution and administered by a dean or director who reports directly to the chief administrative officer. The administration of the occupational education programs should never be subordinate to administrative leadership of other divisions that are primarily devoted to non-occupational objectives. All occupational education programs must clearly be directed toward employment objectives, and it should be clear to all concerned that the programs are not *designed* for transfer to baccalaureate programs although some programs may contain courses that other institutions choose to accept for transfer credit.

A continuing commitment to administrative support of vocational and technical education programs is essential if newly instituted programs are to succeed. The establishment of a new occupational curriculum usually takes the expenditure of many thousands of dollars and a minimum of five years to assemble a faculty, equip facilities and graduate two classes from a two-year training program. After this length of time one or two graduating classes should be successfully employed and the program well established.

Of equal importance is a commitment by the administration to

maintain a systematic way to evaluate the effectiveness of curricula. When programs become outdated and cease to serve their intended function, they should be terminated.

The Need for Community Support

The total program of occupational education within an institution needs the continuing support of the community. An excellent vehicle to gain this support is through the general advisory committee. Further, individual curricula or individual departments need the support and consultation of technical advisory committees; one for each occupational program, which also serves to promote employer and other community support. These advisory groups possess no formal authority and serve voluntarily without pay. Advisory committees fall into three general classifications:

General

The general advisory committee is composed of community leaders representing employers, the professions, labor and education. Its function is to provide suggestions, advice, guidance, and support to the program administrators in determining the overall direction, role, and program content of the total vocational and technical education program; also, to provide appropriate advice in general policy matters.

Technical

The technical advisory committee provides advice regarding instructional content and direction for the specific vocational and technical education programs. Generally this requires a technical advisory committee for each vocational program being conducted.

Apprenticeship

Joint apprenticeship committees are essential where union apprentices are being trained or where instruction related to apprenticeship training is offered. These committees are organized generally through the local representative of the Bureau of Apprenticeship and Training, U.S. Department of Labor.

While there are many ways in which advisory committees may be utilized in the organization and administration of successful vocational and technical education programs, some of their most valuable contributions are:

1. Providing guidance in reviewing and updating vocational and technical education curricula.
2. Assisting in the recruitment of students for entry into training programs and the placement of students after they are trained.
3. Identifying work stations for cooperative programs.
4. Providing assistance in the recruitment and selection of faculty.
5. Providing guidance and assistance in designing, equipping and furnishing instructional facilities.
6. Serving as a vehicle for public relations and a communications and information link to the various social communities served.
7. Providing liaison with business, industry and the professions—both labor and management.
8. Conducting periodic evaluations of the vocational program.

Promoting and Increasing Enrollments by Student Development Programs

Recruiting and qualifying students for technician and similar post-high school programs is a persistant and very significant problem. However desirable it might be to aspire to recruit from the top 25 percent of high school graduating classes it should be recognized that those who probably will comprise the majority in technical or other post-high school occupational programs will not have distinguished themselves by the highest order of academic excellence in high school. Many programs which have adequate funds, equipment, facilities, materials, and a staff, suffer from a lack of qualified students in sufficient numbers to make their programs economically efficient as well as effective for the students and their future employers.

Technicians and comparable specialists are persons who must assume important responsibilities, therefore, no compromise with ignorance is permissible in their preparation; and they must be prepared to function at a level commensurate with their future responsibilities.

The student attrition rate of 40 to 60 percent, which often occurs in rigorous post-high school occupational programs, is unnecessary and unacceptable in terms of human values and socioeconomic accountability.

Because recruitment of students for high quality post-secondary occupational programs continues to be a very real problem, there has been a significant growth in the number of institutions which provide "student development" of student opportunity (pretechnical, post-high school, remedial preparatory programs). (See *Pretechnical Post-High School Programs, A Suggested Guide*, published by HEW, Office of Education, 1967, available from the U.S. Government

Printing Office, Superintendent of Documents, Washington, D.C. 20402, price - $.45.)

The increasingly critical shortage of specialized technical and supportive workers on the one hand, and the evident supply of educable persons on the other—those who have left high school or who have been graduated from high school but who are not pursuing organized programs of education to prepare them for careers in a technological society—represent an unprecedented challenge to educators of technicians.

The problem of meeting the challenge of a large population of able but not fully qualified students for educational programs to meet technical worker requirements essentially requires that organized *student development* services be provided for willing and well-motivated students. These services must start at the point in educational preparation attained by each individual and provide the missing reading, science, or mathematics required for successful mastery of the occupational program to which the student aspires.

These *student development programs* must be "individual," in the sense that they provide a special program for each individual in order to repair his academic deficiencies. They must be taught in such a way as to relate to the special field of interest in which the particular student expects to make a career. The preparatory program must be tailored to each individual's needs and must include *from the beginning some direct involvement* (usually in laboratory work) *in his special field of interest.* Groups of students with similar gaps in their academic preparation can be formed into classes large enough to justify special staff, facilities, and teaching programs to serve their needs.

Administrators of programs which remove the academic deficiencies of students as part of their occupational study program cite the following benefits: the morale of both the students and instructor is improved; the number of students who drop out because of academic failure is greatly reduced; the total cost of educating these specialized occupational personnel is lowered because of better use of facilities, teachers, and fewer failures; finally, better qualified graduates are produced, making them more sought after by employers.

Such preparatory programs usually allow an individual to arrive at a degree of productivity and responsibility in three to five years that normally would take him 12 to 15 years if he entered employment and picked up his education on the job by diligent work and study. This means a net gain of some 10 years of high productivity, benefiting both the individual and his employer, as a direct result of the student having an opportunity to overcome his academic deficiencies and successfully prepare himself for higher level employment.

The Need for Recognition Through Accreditation

Accreditation is very important to educational institutions, and presents special challenges and opportunities to the administrators of post-secondary vocational and technical programs because their sudden growth is so recent that equitable and practical procedures and systems for their accreditation are only now being developed. The effectiveness and administrative efficiency of the accrediting systems and procedures for occupational programs which will become the practice of the future will reflect the amount of constructive involvement of present administrators of such programs. It is, therefore, very important that administrators be informed of the present status and take an active part in the shaping of future accreditation policy and practice.

The federal government maintains no centralized agency which exercise administrative control over educational institutions. This is the responsibility of the various states and other political units which assume varying degrees of control over post-secondary educational institutions. However, many post-secondary institutions operate with considerable autonomy.

While there are many functions served by accreditation, some of the most important are:[10]

1. To certify that an institution or program has met established standards.
2. To help identify institutions and programs for the investment of public and private funds.
3. Assisting prospective students in identifying acceptable institutions.
4. To provide a basis for determining eligibility for federal funds.
5. To establish a criterion for professional certification or licensure.
6. To protect an institution against harmful pressures and political groups that might attempt to disorient the institution.

Accreditation should not be confused with licensure or certification, which are usually granted and controlled by the state. Administrators who operate programs involving licensure or certification must explore the applicable requirements and regulations for their state, and for surrounding states if graduates are likely to migrate from the state. The State Director of Vocational Education can usually provide advice, direction and assistance to administrators on this matter.

[10] U.S. Department of Health, Education and Welfare. U.S. Office of Education. Bureau of Higher Education. "Nationally Recognized Accrediting Agencies and Associations: Criteria and Procedures for Listing by the U.S. Commissioner of Education." Issued by the accreditation and institutional eligibility staff. Washington, D.C., 1970.

In general there are two types of accreditation—institutional, or by individual program. *Institutional* accreditation by one of the six regional accrediting commissions indicates that the institution as a whole is achieving its objectives satisfactorily. It does not always indicate that the program standards for all curriculums within the institution meet the criteria for programmatic excellence that may be required for graduates to be professionally competitive in their field of specialization.

Program accreditation for specific curriculums is awarded by a number of national organizations, each usually representing a single professional or specialized area in such occupations as engineering related technologies or health related occupations. Program accreditation applies to professional and vocational schools or programs, and is aimed at protecting the public against professional incompetence. There are 34 nationally recognized special program accrediting associations and agencies.[11] Many of them require that the institution seeking their accreditation of a special program must already have received accreditation from the regional association before the individual program accreditation can be granted.

Specific information concerning the accreditation of post-high school occupational education programs may be obtained from the State Director of Vocational Education or Chief State School Officer in each state; the Bureau of Adult, Vocational and Technical Education or the Bureau of Higher Education's Accreditation and Institutional Eligibility Staff, U.S. Office of Education, Department of Health, Education and Welfare, Washington, D.C. 20202; or from the National Commission on Accrediting, 1785 Massachusetts Avenue, N.W., Washington, D.C. 20036.

[11] Ibid., p. 5.

VI

COORDINATION OF VOCATIONAL AND TECHNICAL EDUCATION

State Patterns for Post-Secondary Occupational Education

Just as education and manpower needs vary between states, state control of post-secondary occupational education varies. In some states, post-secondary vocational and technical education may be administered by the state division of vocational education regardless of the institutional setting. In other states, such programs may be controlled by the regents for higher education or a special state board for this purpose. Occupational education programs in community colleges may be administered by a state board for community colleges. But in a number of states a combination of state boards or agencies operates through cooperative arrangements to administer a variety of programs in a variety of institutional settings.

It is imperative that the chief administrator of an institution confer with state educational agencies to determine which administrative unit of state government has the responsibility for administering vocational education funds for post-secondary programs, and to insure that his institution's programs contribute constructively to the overall state plan. Programs must then be designed and operated to meet the minimum standards of that agency if those funds are to be solicited.

Regardless of the utilization of federal funds in the operation of occupational education programs, the administration of the institution must assess the pattern of institutional control in that state. It must maintain a harmonious relationship with the state division of vocational education and the various state boards controlling higher education and must seek to provide an institutional setting in which coordinated cooperative occupational education efforts may prosper.

Regional Cooperation

Most vocational and technical education programs are designed to meet the manpower needs of the immediate area or state served. However, there are certain specialized technicians or related specialists in such fields as veterinarian assistant and laboratory animal care, mortuary science, or marine technologies, where the demand for graduates in the immediate local area or state is not sufficient to employ all program graduates. These programs must serve a regional or national manpower market. While the numbers of

openings for entry level workers in these areas may be relatively low, the regional or national labor market may desperately need a continuous but limited supply of workers with this certain sophisticated knowledge and skill. The planning, implementation and maintenance of these types of programs should be accomplished on an interstate or regional cooperative basis.

Under an interstate or regional cooperative basis an institution allows students from outside its financial support district to enroll in its training program as resident students. Cooperating states reciprocate in terms of out-of-state or district enrollments in their programs. In this manner expensive and needless duplication of programs is avoided.

Institutional-State-Federal Relationships

Although institutional governing patterns and administrative frameworks may vary between states, there are certain agencies to which institutions may look for assistance and advice. The state division of vocational education maintains a qualified professional staff that may provide planning assistance and technical expertise upon request. Similarly, a state agency for community colleges may provide information and assistance. These agencies can frequently indicate other resources for program assistance and planning.

Technical and financial advice for institutions offering occupational education programs may be obtained through any of the regional offices of the U.S. Office of Education. The location of the nearest regional office may be obtained through the state division of vocational education.

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Abstracts of Instructional Materials in Vocational and Technical Education. Fall 1967, Quarterly. Columbus, ERIC Clearinghouse, The Center for Vocational and Technical Education, The Ohio State University. VT 003 884.

Abstracts of Instructional Materials in Vocational and Technical Education (AIM) includes abstracts of materials typically designed for teacher use or student use in the classroom, and annotations of bibliographies or lists of instructional materials.

Abstracts of Research and Related Materials in Vocational and Technical Education. Fall 1967, Quarterly. Columbus, ERIC Clearinghouse, The Center for Vocational and Technical Education, The Ohio State University. VT 003 696.

Abstracts of Research and Related Materials in Vocational and Technical Education (ARM) incorporates abstracts of research and other materials which are useful to a wide audience of users such as researchers, supervisors, teacher educators, education specialists, administrators, teachers, and others who have an interest in vocational and technical education.

American Association of Junior Colleges. *Publications.* Washington: American Association of Junior Colleges, 1970. 12 pp.

This current list of publications of the American Association of Junior Colleges includes guidelines for program planners, facility guides, curriculum guides, and a wide variety of assorted publications useful to those responsible for initiating and conducting post-secondary vocational and technical education programs.

American Vocational Association. *Developing Educational Specifications for Vocational and Practical Arts Facilities.* Washington: American Vocational Association, 1959. 49 pp.

The American Vocational Association and The American Institute of Architects in a joint effort have developed a guide to assist both educators and architects in planning and building vocational and practical arts facilities. Suggested techniques are presented for developing specifications based upon the specific needs of the student, the school, and the community.

American Vocational Association. *Directory of Post-Secondary Retailing and Marketing Vocational Programs.* Washington: American Vocational Association, 1968. 66 pp.

This publication answers commonly asked questions about post-secondary retailing and marketing vocational programs and

outlines how such programs operate. It further provides a national directory of post-secondary retailing and marketing programs indicating address of the program, specialty area or areas, accreditation status, and local contact for further information.

Arnold, Walter M., and others, eds. *Career Opportunities for Technicians and Specialists: Community Service and Related Specialists.* Chicago: J. G. Ferguson Publishing Company, 1970. 292 pp.

Occupational and educational information and a list have been compiled for 19 major career areas, excluding health technicians, in which the primary focus of work is serving and attending to the personal tastes, needs, and welfare of others. This information should be of use to students, teachers, parents, guidance counselors, curriculum specialists, and employers. The material includes numerous photographs of technicians and specialists in school and on the job.

Arnold, Walter M., and Brooking, Walter J., eds. *Career Opportunities for Technicians and Specialists: Engineering Technicians.* Chicago: J. G. Ferguson Company, 1969. 388 pp.

This publication identifies 23 career areas in which technical knowledges and skills are needed and where relatively high degrees of responsibility are required, and lists schools where they are taught. Related occupational and educational information is presented for the student, parent, teacher, guidance counselor, curriculum specialist, and employer. Photographs of technicians in school and on the job contribute to the quality and appropriateness of the material.

Arnold, Walter M., and Kinsinger, Robert E., eds. *Career Opportunities for Technicians and Specialists: Health Technicians.* Chicago: J. G. Ferguson Publishing Company, 1969. 402 pp.

Occupational and educational information and a list of schools have been compiled for 25 health service career areas. This information should be particularly valuable to students faced with career decisions. Parents, teachers, guidance counselors, curriculum specialists, and employers will also find this publication useful.

Arnold, Walter M., and Sidney, Howard, eds. *Career Opportunities for Technicians and Specialists: Agricultural, Forestry, and Oceanographic Technicians.* Chicago: J. G. Ferguson Publishing Company, 1969. 356 pp.

Occupational and educational information and a list of schools have been compiled for 25 career areas in animal science, plant science, ornamental horticulture, forest and conservation, oceanography, and off-farm employment. The information should be

of particular use to students faced with career decisions. Parents, teachers, guidance counselors, curriculum specialists, and employers may also find it to be very useful. Numerous photographs of technicians and specialists in school and on the job contribute to the quality and appropriateness of the material.

Arnold, Walter M., and Wiggs, Garland D., eds. *Career Opportunities for Technicians and Specialists: Marketing, Business, and Office Specialists.* Chicago: J. G. Ferguson Publishing Company, 1970. 411 pp.

Students, teachers, parents, guidance counselors, curriculum specialists, and employers may find much helpful occupational and educational information in this publication. Twenty-six major career areas within the scope of the marketing, business, and office field are discussed, and schools where they are taught are listed. The material contains numerous photographs of specialists in school and on the job.

Braden, Paul V.; Chapman, Dennis N.; and Miller, Wayne W. *A Guide for the Development of Residential Vocational Education.* Okmulgee, Oklahoma: The Oklahoma State University School of Technical Training, May 1969. 40 pp.

Discussions with subsequent recommendations relating to the following topics are presented: 1) Guidelines for Residential Vocational Schools; 2) Students to be Served; 3) Curricula, Course Objectives, and Instructional Materials Best Utilized in Residential Vocational Schools; 4) Staff, Faculty, and Service Personnel; 5) Location of Residential Vocational Schools; and 6) Employment and Follow-up of Students.

Cross, Patricia. *The Junior College Student: A Research Description.* Princeton, New Jersey: Educational Testing Service, 1968. 58 pp. ED 024 354.

Research findings relating to the socioeconomic, socio-cultural, and academic backgrounds of junior college students have been reviewed by the author. The research permits certain generalizations concerning student career decision patterns, educational aspirations, attitudes, and academic achievement.

Gillie, Angelo C. *Essays: Occupational Education in the Two-Year College.* University Park, Pennsylvania: Department of Vocational Education, The Pennsylvania State University, January 1970. 167 pp. VT 010 671.

This publication is divided into three parts comprising eight essays on post-secondary occupational education. The first section gives an overview of the developments and current state of post-secondary

occupational education. The second section presents a philosophical approach to improvements in curriculum design and the educational environment to better serve the occupational education needs of urban youth in general, and the needs of alienated youth in particular. The last section delineates the future role of the junior college in occupational education.

Hull, William L.; Frazier, William D.; and Stevenson, William W. *Research Handbook for Vocational-Technical Education.* Stillwater, Oklahoma: Research Coordinating Unit, Oklahoma State University, July 1969. 48 pp. ED 030 002.

The experiences, ideas, and research perspectives of individuals from all facets of vocational and technical education have been drawn upon to form a concise, forward characterization of research and development at the state and local level. The following substantive concepts and levels of research are discussed: legislation authorizing research monies; ways and means to implement research policies; and national problems and issues in research.

Messersmith, Lloyd E., and Medsker, Leland L. *Problems and Issues in Accreditation by Specialized Agencies of Vocational-Technical Curricula in Post-Secondary Institutions.* Berkeley, California: Center for Research and Development in Higher Education, University of California, 1969. 142 pp. ED 030 750.

Extensive findings and conclusions are presented regarding a study of information on specialized accreditation. Particular attention has been devoted to determining the extensiveness of accreditation effects upon program development, and the concerns of specialized agencies related to standards of training.

Miller, Aaron J., and Hyder, Carroll R. *National Conference on Post-Secondary Vocational-Technical Education.* Columbus, Ohio: The Center for Vocational and Technical Education, The Ohio State University, February 1970. 210 pp. ED 037 552.

The focus of this publication is on leadership development in post-secondary vocational-technical education. The material is comprised of six position reports. Each position report is addressed to one of the following topics: 1) Who Shall be Served by Post-High School Vocational-Technical Education?; 2) Educational Personnel Development for Post-High School Vocational-Technical Education; and 3) Organizational Structure for Post-Secondary Vocational-Technical Education. Also presented is a synthesis and commentary of the reports submitted by conference discussion groups.

National Committee on Employment of Youth. *A Guide to the Development of Vocational Education Programs and Services for the Disadvantaged.* New York: National Committee on Employment of Youth, October 1969. 33 pp. ED 035 743.

The content of this guide is a refinement of papers presented at a national workshop on vocational education for the disadvantaged. The following topics are covered: 1) Curriculum Development, 2) Teaching the Disadvantaged, 3) New Counseling Functions and Supportive Services, 4) Working with Employers and Unions, 5) Involving the Community, 6) Towards an Instructional System, and 7) Vocational Education—A Developmental Perspective.

Richardson, Richard C., Jr. *Emphasis: Occupational Education in the Two-Year Junior College.* Washington: American Association of Junior Colleges, 1966. 86 pp. ED 014 294.

Four conference papers are presented in this publication, followed by recommendations of conference participants. The following themes relating to occupational education in the junior colleges are included: 1) public relations, 2) interagency communication, 3) administration, 4) advisory committees, and 5) research.

University of California. Division of Vocational Education. *A Guide for the Development of Curriculum in Vocational and Technical Education.* Los Angeles: University of California, Division of Vocational Education, June 1969. 36 pp.

This guide resulted from a national conference on curriculum development and subsequent discussions at nine regional clinics. It was prepared for use by curriculum specialists, instructors, supervisors, and administrators at the state and local levels in establishing and operating programs for curriculum development. The guidelines represent broad approaches to the many problems of curriculum development.

University of Nebraska. Department of Home Economics Education. *A Guide for the Development of Consumer and Homemaking Education.* Lincoln, Nebraska: University of Nebraska, Department of Home Economics Education, 1966. 66 pp. ED 034 876.

The purpose of this guide is to provide vocational educators with needed insights for the expansion and redirection of consumer and homemaking education. Included is information relating to: 1) the groups to be served, 2) working with different individuals, 3) attaining the intent of the Law, 4) quality in homemaking education programs through ancillary services and activities, and 5) evaluating programs.

U.S. Department of Health, Education, and Welfare. Office of Education. *Agricultural Equipment Technology: A Suggested Two-Year Post-High School Curriculum.* Catalog Number FS 5.281:81015. Washington: Superintendent of Documents, U.S. Government Printing Office, 1970. 112 pp. VT 010 765.

_____. *Architectural and Building Construction Technology: A Suggested Two-Year Post-High School Curriculum.* Catalog Number FS 5.280:80062. Washington: Superintendent of Documents, U.S. Government Printing Office, 1969. 110 pp. VT 010 769.

_____. *Child Care and Guidance: A Suggested Post-High School Curriculum.* Catalog Number FS 5.287:87021-A. Washington: Superintendent of Documents, U.S. Government Printing Office, Revised 1970. 50 pp.

_____. *Civil Technology - Highway and Structural Options: A Suggested Two-Year Post-High School Curriculum.* Catalog Number FS 5.280:80041. Washington: Superintendent of Documents, U.S. Government Printing Office, 1966. 115 pp. ED 012 338.

_____. *Electrical Technology: A Suggested Two-Year Post-High School Curriculum.* Catalog Number FS 5.280:80006. Washington: Superintendent of Documents, U.S. Government Printing Office, 1960. 127 pp. ED 013 313.

_____. *Electronic Technology: A Suggested Two-Year Post-High School Curriculum.* Catalog Number FS 5.280:8009A. Washington: Superintendent of Documents, U.S. Government Printing Office, 1966. 114 pp. ED 013 309.

_____. *Farm Crop Production Technology: A Suggested Two-Year Post-High School Curriculum.* Catalog Number FS 5.280:81016. Washington: Superintendent of Documents, U.S. Government Printing Office, February 1970. 179 pp. VT 010 968.

_____. *Food Processing Technology: A Suggested Two-Year Post-High School Curriculum.* Catalog Number FS 5.282:82016. Washington: Superintendent of Documents, U.S. Government Printing Office, 1967. 103 pp. ED 017 724.

_____. *Forest Technology: A Suggested Two-Year Post-High School Curriculum.* Catalog Number FS 5.280:80054. Washington: Superintendent of Documents, U.S. Government Printing Office, November 1968. 151 pp. ED 021 063.

_____. *Grain, Feed, Seed, and Farm Supply Technology: A Suggested Two-Year Post-High School Curriculum.* Catalog Number FS 5.28:81014. Washington: Superintendent of Documents, U.S. Government Printing Office, December 1968. 194 pp. ED 029 961.

_____. *Instrumentation Technology: A Suggested Two-Year Post-High School Curriculum.* Catalog Number FS 5.280:80033. Washington: Superintendent of Documents, U.S. Government Printing Office, 1966. 123 pp. ED 012 337.

_____. *Mechanical Technology-Design and Production: A Suggested Two-Year Post-High School Curriculum.* Catalog Number FS 5.820:80019. Washington: Superintendent of Documents, U.S. Government Printing Office, 1964. 111 pp. ED 013 312.

_____. *Metallurgical Technology: A Suggested Two-Year Post-High School Curriculum.* Catalog Number FS 5.281:81012. Washington: Superintendent of Documents, U.S. Government Printing Office, 1968. 121 pp. VT 008 623.

_____. *Pretechnical Post-High School Programs: A Suggested Guide.* Catalog Number FS 5.280:80049. Washington: Superintendent of Documents, U.S. Government Printing Office, 1967. 67 pp. ED 017 725.

_____. *Recreation Program Leadership: A Suggested Two-Year Post-High School Curriculum.* Catalog Number FS 5.287:87042. Washington: Superintendent of Documents, U.S. Government Printing Office, 1969. 94 pp. ED 034 038.

_____ . *Water and Wastewater Technology: A Suggested Two-Year Post-High School Curriculum.* Catalog Number FS 5.280:80057. Washington: Superintendent of Documents, U.S. Government Printing Office, December 1968. 141 pp. ED 031 565.

A series of suggested curriculums have been prepared by the Division of Vocational and Technical Education, U.S. Office of Education, to assist vocational and Technical educators plan and initiate technology programs, or evaluate existing ones. Contents include: general program background and considerations; faculty considerations; student selection and services; curriculum plans and procedures; course outlines with major divisions, time allotments, suggested texts, references, and audio-visual aids; information on facilities, equipment and costs; and appendices which include a list of societies and associations, sample laboratory activity exercises and report forms. These guides provide plans for programs; plans to be modified by administrators and their advisors to meet local, state, and regional needs.

_____ . *Criteria for Technician Education: A Suggested Guide.* Catalog Number FS 5.280:80056. Washington: Superintendent of Documents, U.S. Government Printing Office, 1968. 91 pp. ED 027 417.

The accumulated experience of successful programs has been used as a base from which to discuss the following guidelines relating to planning, establishing, and operating programs in technical education: administrative organization, curriculum, facilities, and professional personnel.

_____ . *Scientific and Technical Societies Pertinent to the Education of Technicians.* Catalog Number FS 5.280:80037. Washington: Superintendent of Documents, U.S. Government Printing Office, 1965. 54 pp. ED 019 438.

A brief history, purpose, membership total, and publications are given for each of 275 societies. Federal, state, and local school administrators, supervisors, department heads, teachers, librarians, and guidance counselors may find such societies to provide an easily accessible guide to scientific and technical materials.

Young, Earl B., ed. *Vocational Education for Handicapped Persons: Handbook for Program Implementation.* Washington: U.S. Office of Education, Division of Vocational and Technical Education, August 1969. 131 pp. VT 009 932.

The handbook presents basic information about the handicapped and realistic suggestions about program discipline. Special attention is devoted to characterizing interagency cooperation and involvement, rural area services, community involvement, instructional materials, planning programs for the handicapped, and personnel requirements.

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